

19TQ015 SERIES

SCHOTTKY RECTIFIER

19 Amp

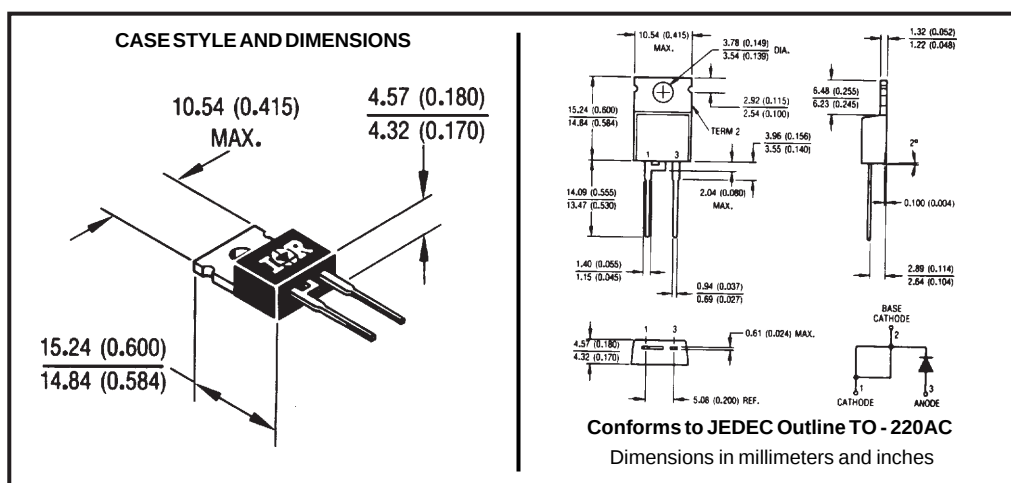
Major Ratings and Characteristics

Characteristics	19TQ015	Units
$I_{F(AV)}$ Rectangular waveform	19	A
V_{RRM}	15	V
I_{FSM} @ $t_p = 5 \mu s$ sine	700	A
V_F @ 19 Apk, $T_J = 75^\circ C$	0.32	V
T_J range	-55 to 100	$^\circ C$

Description/Features

The 19TQ015 Schottky rectifier has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 100° C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 100° C T_J operation
- Optimized for OR-ing applications
- Ultra low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance



Voltage Ratings

Part number	19TQ015
V_R Max. DC Reverse Voltage (V)	15
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	19TQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	19	A	50% duty cycle @ $T_C = 80^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	700	A	5 μs Sine or 3 μs Rect. pulse
	330		10ms Sine or 6ms Rect. pulse
E_{AS} Non-Repetitive Avalanche Energy	6.75	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 1.50$ Amps, $L = 6$ mH
I_{AR} Repetitive Avalanche Current	1.50	A	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 3 \times V_R$ typical

Electrical Specifications

Parameters	19TQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1) * See Fig. 1	0.36	V	@ 19A
	0.46	V	@ 38A
	0.32	V	@ 19A
	0.43	V	@ 38A
I_{RM} Max. Reverse Leakage Current (1) * See Fig. 2	10.5	mA	$T_J = 25^\circ\text{C}$
	522	mA	$T_J = 100^\circ\text{C}$
	465	mA	$T_J = 100^\circ\text{C}$
	285	mA	$T_J = 100^\circ\text{C}$
C_T Max. Junction Capacitance	2000	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance	8.0	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change (Rated V_R)	10,000	V/ μs	

(1) Pulse Width < 300 μs , Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters		19TQ	Units	Conditions
T _J	Max. Junction Temperature Range	-55 to 100	°C	
T _{stg}	Max. Storage Temperature Range	-55 to 100	°C	
R _{thJC}	Max. Thermal Resistance Junction to Case	1.50	°C/W	DC operation * See Fig. 4
R _{thCS}	Typical Thermal Resistance, Case to Heatsink	0.50	°C/W	Mounting surface, smooth and greased
wt	Approximate Weight	2(0.07)	g(oz.)	
T	Mounting Torque	Min. 6(5)	Kg-cm (lbf-in)	
		Max. 12(10)		
Case Style		TO-220AC		

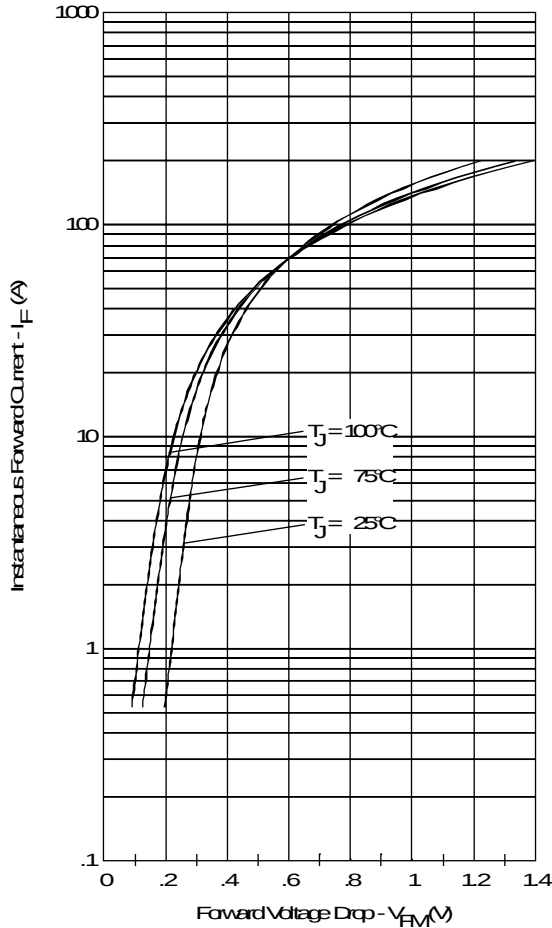


Fig. 1 - Maximum Forward Voltage Drop Characteristics

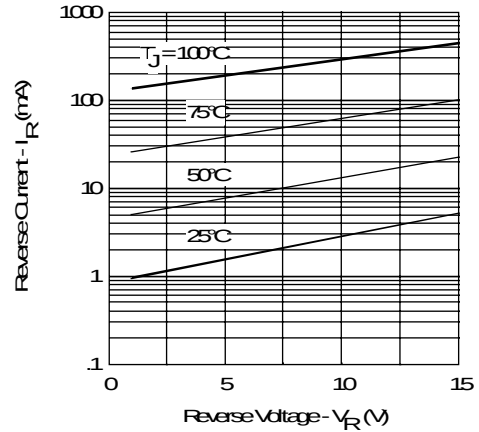


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

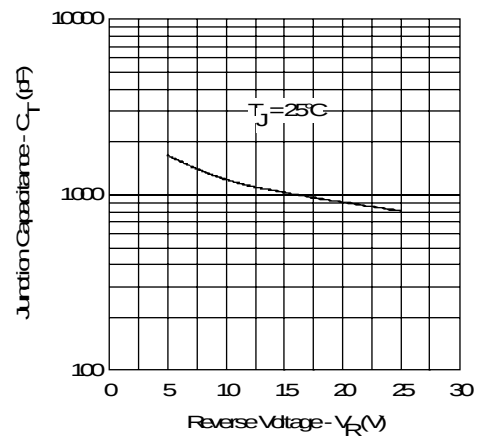


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

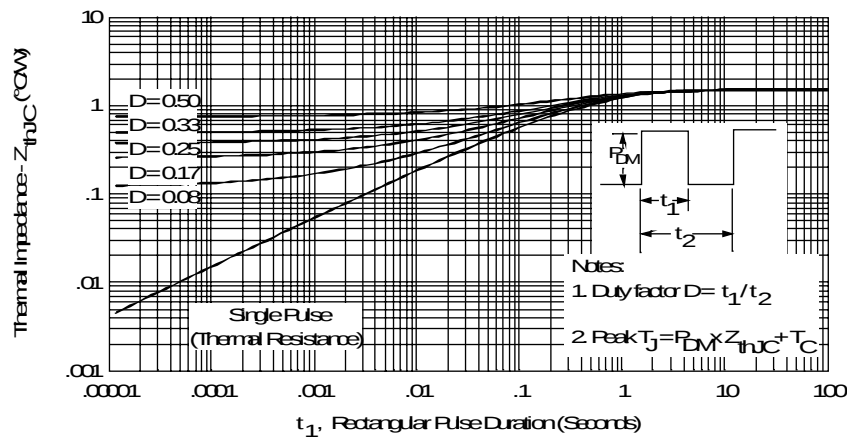


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

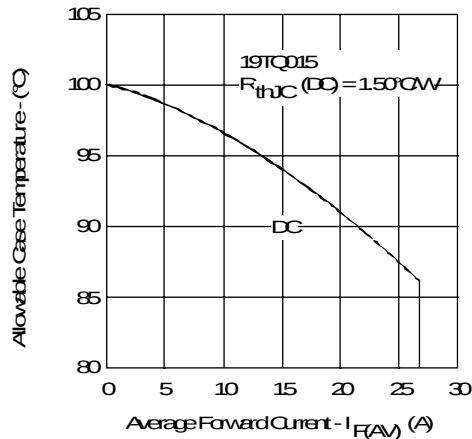


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

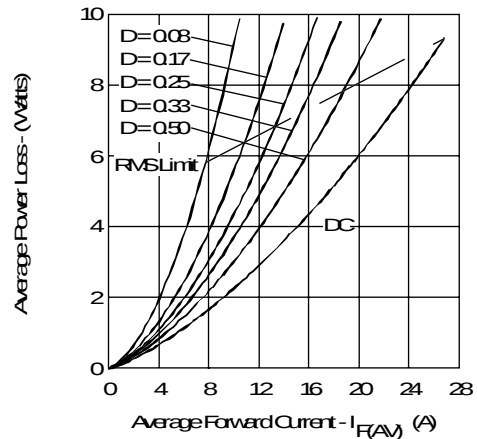


Fig. 6 - Forward Power Loss Characteristics

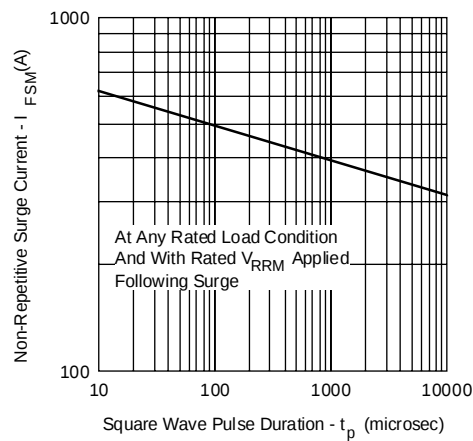


Fig. 7 - Maximum Non-Repetitive Surge Current

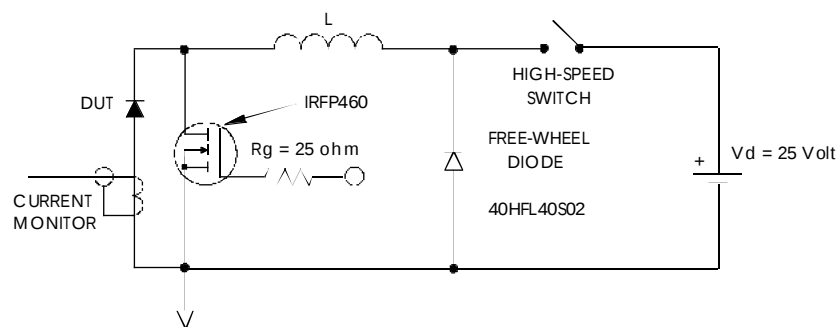


Fig. 8 - Unclamped Inductive Test Circuit